ABSTRACT OF THE DISCLOSURE

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A tuned resonator circuit topology is disclosed that permits implementation of narrow band-pass filters having high loaded Q and optimal coupling (for low insertion loss) using a parallel tuned resonator topology at frequencies in the 1 to 2 GHz range and beyond. The topology consists of a mirror image of the parallel tuned circuit about the signal line of a conventional parallel tuned circuit to effect a cancellation of virtually all of the induced currents between the inductive elements of the resonators. This reduction in induced currents reduces the magnetic coupling between the resonators, thereby offsetting the increase in overall coupling between the resonators as frequency increases, and thereby serves to maintain optimal coupling between the resonators as the frequency of operation increases. Moreover, the mirror image topology increases the parallelism between the inductive elements in the resonators, thereby decreasing the inductance values and permitting an increase in capacitance values. Increasing the capacitance values of the resonators effectively offsets the decrease in the loaded Q as frequency is increased. The topology works for any number of parallel resonators. As the resolution of the manufacturing process decreases (e.g. from printed circuit board to integrated circuit processes), the range of operating frequencies scales with the increase in resolution.